

TILLYARD, R. J.

1935. The evolution of the scorpion-flies and their derivatives (Order Mecoptera). *Ann. Ent. Soc. Amer.*, Vol. 28, No. 1, pp. 1-45, 24 figs., 2 pls.

WILLIAMS, F. X.

1916. The pupa of *Boreus brumalis* Fitch. *Psyche*, Vol. 23, No. 2, pp. 36-39, fig. 1.

EXPLANATION OF PLATE.

- Fig. 1. *Panorpa utahensis*, new species, left front wing of male paratype.
 Fig. 2. Same, dorsal view of subgenital plate of allotype.
 Fig. 3. Same, ventral view of genital bulb of holotype.
 Fig. 4. Same, attachment of hypovalvae to the hypandrium of holotype.
 Fig. 5. Same, dorsal view of preepiproct and associated structures (forceps omitted) of holotype.
 Fig. 6. Same, dorsal view of internal skeleton of allotype.
 Fig. 7. *Panorpa venosa* Westwood, ventral view of genital bulb, drawn from an alcoholic male collected in August, 1936, 19 miles north of Washington, D. C., by H. S. Barber.

(Figure 1 drawn by Eleanor A. Carlin, others by the author.)

A NEW CHEYLETID MITE (ACARINA) PARASITIC ON THE CAROLINA JUMPING MOUSE, *ZAPUS HUDSONIUS AMERICANUS* (BARTON).

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During the summer of 1937 the writer in company with Mr. Robert Bray and Mr. George Petrides trapped regularly around Washington, D. C., with the purpose of collecting arthropod ectoparasites of small mammals. On July 31, there was captured at Suitland, Md., a Carolina jumping mouse which, on examination, was found to be parasitized by a new species of *Myobia*. Infestation was more or less general, the mites in all stages of development occurring over the entire pelage.

I wish to express my appreciation to Dr. H. E. Ewing, of the Bureau of Entomology and Plant Quarantine, in whose honor this new species is named, for his helpful advice and encouragement while this work was in progress.

FAMILY CHEYLETIDAE.

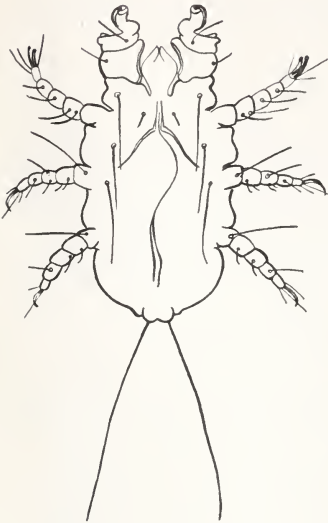
Myobia ewingi, n. sp.

Female. (Fig. 2): Total length, 0.42 mm.; width at the widest place, 0.23 mm. Dorsal setae arranged in five transverse rows, of which the first three consists of

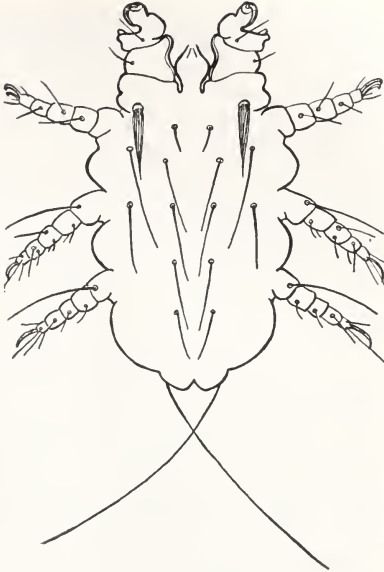
four setae each, while the last rows consist of but two setae each. Lateral setae of row I situated at the bases of legs I and anterior to the coxae of legs II, larger than any of the other setae, being basally broad and tapering to a fine point, long, reaching beyond the bases of the lateral setae of row II by about half their length. Submedian setae of row I very small, less than half the length of the lateral setae of that row, situated much more posteriorly, short, barely reaching the bases of the submedian setae of row II. Lateral setae of row II situated posterior to legs II, long and slender, reaching beyond the bases of the lateral setae of row II by about half their length. Submedian setae of row II placed more posteriorly than the lateral setae of this row, long and slender, reaching well beyond the bases of the submedian setae of row III. Lateral setae of row III situated at the base of legs III, long and slender, reaching to the coxae of legs IV. Submedian setae of row III placed slightly anterior to the lateral setae of this row, slightly longer than the latter, reaching beyond the bases of the submedian setae of row IV by about one-third of their length. Row IV consisting of a single pair of setae, submedian in position, long and slender, reaching beyond the bases of submedian setae of row V by about one-third their length. Row V also consisting of a single submedian pair of setae situated posterior to legs IV and as long as the submedian setae of row IV. Legs I distinctly three-segmented, more than twice as long as wide. Tarsi of legs II each with two slender claws, the posterior of which is slightly shorter and more slender than the anterior. Tarsi of legs III and IV each with a single slender curved claw.

The female of this species may be distinguished from *M. affinis* Poppe, which it closely resembles by the unequal claws of the tarsi of legs II and by lacking a well-developed seta on the trochanters of legs II, III, and IV. In the above-described species the setae of the trochanters are very weak and much less developed than the body setae, rather than being strong and robust and as well developed as the body setae. From *M. musculi* (Schrank) the female of this new species is differentiated by the absence of lateral setae posterior to legs IV in row V and by the possession of two claws on the tarsi of legs II rather than but one.

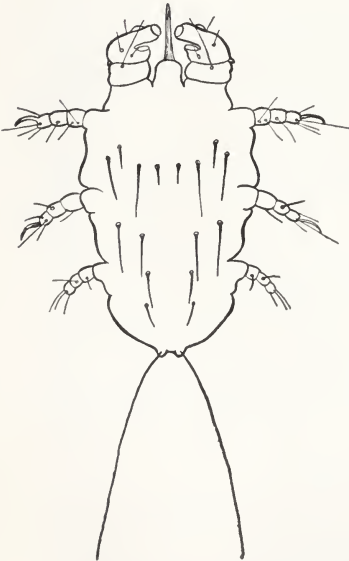
Male (Fig. 1): Total length, 0.36 mm.; width at the widest place, 0.17 mm. Dorsal setae arranged in three transverse rows of which the first consists of four setae, while the last two rows consist of but two setae each. Lateral setae of row I situated at the bases of legs I and anterior to the coxae of legs II, long and slender, not different from the other lateral setae, extending beyond the bases of the lateral setae of row II. Submedian setae of row I very much reduced, situated far behind the place of origin of the lateral setae of the same row. Lateral setae of row II situated posterior to legs II, long and slender, extending beyond the bases of the lateral setae of row III. Submedian setae of row II absent. Lateral setae of row III situated at the bases of legs III, long and slender, extending well beyond the coxae of legs IV. Submedian setae of row III also absent. Legs I distinctly three-segmented, more than twice as long as wide. Tarsi of legs II each with two slender claws of which the posterior is longer than the anterior and more slender. Tarsi of legs III and IV each with a single slender curved claw. Penis long and tapering, extending to a point on the same level with the bases of legs II. For further details regarding the structure of the penis see Fig. 1.



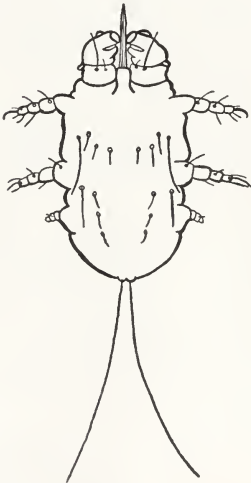
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4

The male of this species may readily be distinguished from that of *M. affinis* Poppe by the penis, which is much longer and more sinuous and by the reduced setae on the trochanters. From the male of *M. musculi* (Schrank) this species is differentiated by the absence of setae between the lateral setae of row II and by having two claws on the tarsi of legs II rather than one.

Protonymph (Fig. 4): Total length, 0.28 mm.; width at the widest place, 0.16 mm. Dorsal setae arranged in five transverse rows, of which the first consists of two setae, the second of six setae, and the last two of two setae each. The setae of the first row are lateral in position and situated well behind the bases of legs II, short but extending well beyond the origin of the lateral setae of row II. Lateral setae of row II situated about half way between legs II and III, long, being the longest setae on the dorsum, reaching well beyond the coxae of legs III. The lateral setae of row II are followed by two small submedian setae whose position and length are shown in Fig. 4. Lateral setae of row III situated behind legs III, long, extending to the bases of legs IV. Submedian setae of row III very small, much shorter than the lateral setae of that row, situated much more posteriorly and hardly reaching the bases of the setae of row IV. Row IV consisting of a single pair of setae submedian in position, situated on a level with legs IV, short, barely reaching the bases of the setae of row V. Row V consisting of a single submedian pair of setae situated posterior to legs IV and somewhat smaller than the setae of row IV. Legs I three-segmented, more than twice as long as wide. Legs II and III about the same length, legs IV much reduced, about one-third as long as legs III. Tarsi of legs II each with one slender curved claw, tarsi of legs III and IV without any claw.

Deutonymph (Fig. 3): Total length, 0.35 mm.; width at the widest place 0.21 mm. Dorsal setae arranged as in the protonymph, more robust and better developed. Legs I twice as long as wide, three-segmented. Legs II and III about the same length, legs IV longer than in the protonymph, almost as long as legs III. Legs II and III each armed with a single slender, curved claw; legs IV without a claw.

The nymphal stages of this species are unusual in the rudimentary condition of the fourth pair of legs and in the tarsal armament.

Type host.—The Carolina jumping mouse, *Zapus hudsonius americanus* (Barton) collected at Suitland, Md., July 31, 1937, by Robert Bray, George Petrides, and Irving Fox.

Types.—Female holotype, male allotype, a protonymph and a deutonymph in the United States National Museum (U. S. N. M. Cat. No. 1279). Fourteen female paratypes, four male paratypes, three protonymphs and three deutonymphs in the writer's private collection. All the material is mounted in balsam.

EXPLANATION OF PLATE.

- Fig. 1.—*Myobia ewingi*, n. sp., male, dorsal view.
 Fig. 2.—*idem*, female, dorsal view.
 Fig. 3.—*idem*, deutonymph, dorsal view.
 Fig. 4.—*idem*, protonymph, dorsal view.